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The Impact Of **DevOps** In 2021

The Ultimate Industry Outlook For DevOps Professionals

Table of Contents

Addressing the Gorilla in the room: COVID-19 02

Applying DevOps practices to your delivery pipeline in 2021 03

The difference between continuous integration and continuous delivery 05

Benefits of implementing a CI/CD model for your company in 2021 06

Alternatives to CI/CD you can use in 2021 07

Why DevOps May Fail in 2021 08

Lessons learned that you could leverage to argue for DevOps in 2021 09

Why DevOps is different from Agile 10

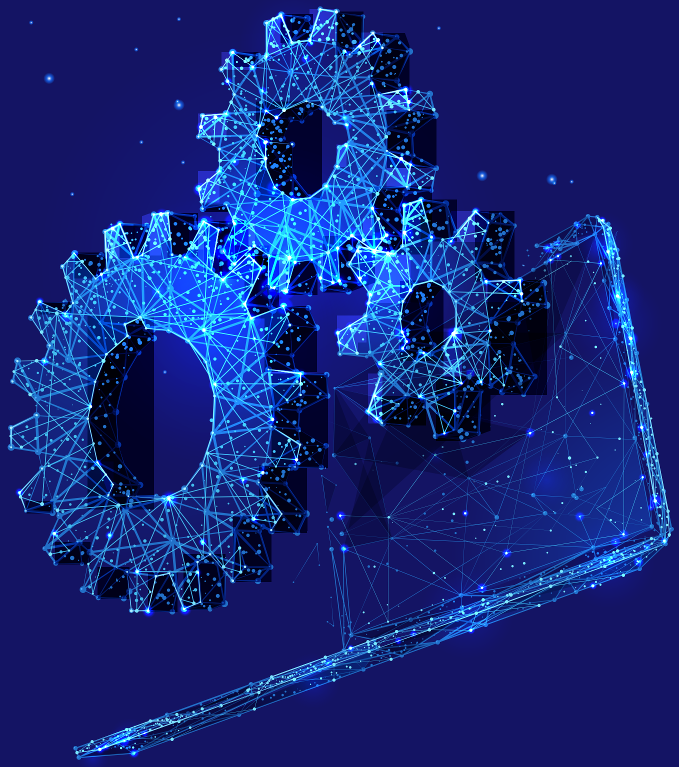
How Scaled Agile Framework and DevOps can work together in 2021 11

DevOps and AIOps become more aligned in 2021 14

The value of Cloud Services increases in 2021 15

The emergence of the Citizen Developer in 2021 16

How will investments in IT continue to shape organizations in 2021? 17



In the past, developing and deploying software was done in weeks or even days. Now, with the advent of agile and DevOps, the software is produced and released every day. IT has to accept these changes to succeed in today's dynamic technology environment and learn to embrace them.

Developing and deploying software requires much planning, and it's also challenging to keep track of the process. The planning and tracking challenge is vital when the software you're delivering is a critical part of your business. Thankfully, DevOps offers some real solutions that can reduce the risk of deploying and releasing software into production.

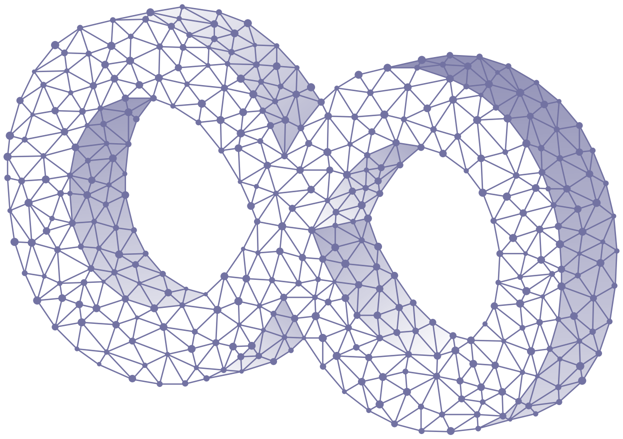
Addressing the Gorilla in the room: COVID-19

Let’s be frank: 2020 was not the year we expected. The impact of the COVID-19 pandemic will be felt for years to come and, in many ways, will define the next decade.

For digital delivery teams, COVID-19 did force one very positive outcome: the “Work From Home” mandate in dozens of countries forced companies to accelerate the adoption of their digital solution rapidly. The impact is that companies have come to realize that technology truly does drive their business and that digital strategies have been brought forward by years to accommodate our new normal.

DevOps will see a significant impact in 2021 due to the massive increase in demand for remote workers reliant on cloud services and solutions. There will be an accelerated demand for continuous delivery, automation integration, and further reliance on Cloud Native services.

COVID-19 has forever changed our world. Technology provides the toolset that will keep us connected and allow us to achieve our company goals.



Applying DevOps practices to your delivery pipeline in 2021

As you begin to adopt DevOps practices into your delivery pipeline, you'll need to decide where to locate your source code and what your integration requirements are. You'll also need to understand the best ways to deploy and release your application.

The ability to quickly deploy your application, no matter what its environments, is a crucial capability. It ensures that the applications you deliver will always perform well and can respond quickly to customer needs.

To set yourself up for success, you'll need a continuous integration (CI) system and continuous delivery (CD) system in place. In addition to your CI/CD system, you'll also need a service delivery team to adjust your software to meet customer demands.

A CI/CD system creates a software version of your application, enabling you to see and test the application's latest release. This release generation allows you to make changes to the application to improve its performance or quality.

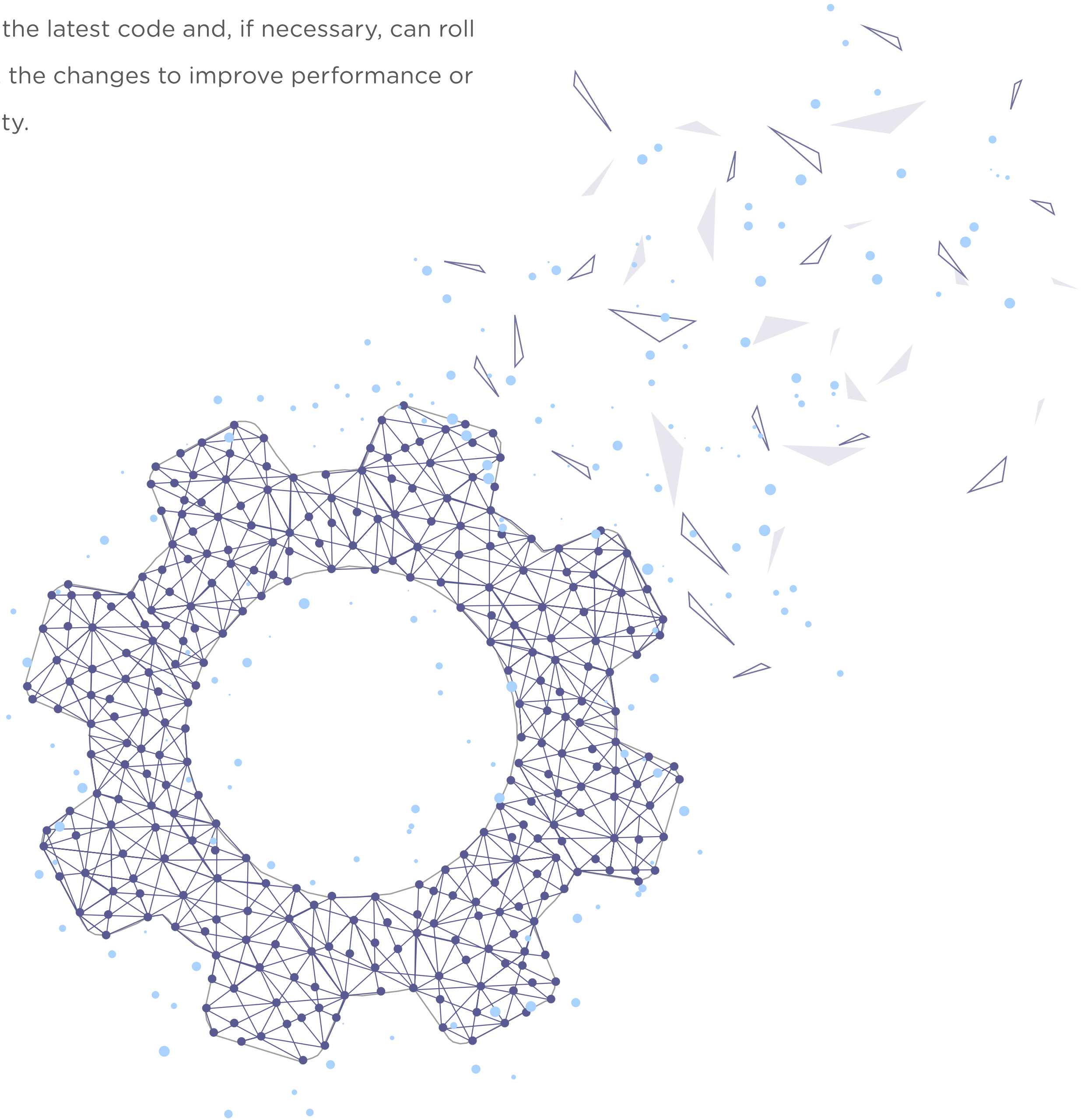
A service delivery team's role is to ensure that your application is deployed on-demand, with minimal risk to the business, and without compromising the user experience. They must monitor your application's performance in production and make changes or deploy a new version as and when the customer needs it.

In the simplest terms, they're responsible for finding, deploying, and maintaining the right set of services to respond to the business's performance and quality expectations.

Continuous integration enables the creation of small "sprints" and routine management of changes. With continuous integration, you should set up a process that generates a new CI build for each increment of work that's completed on the part of development.

This incremental process ensures that you're always testing and retesting parts of the code with the latest code and, if necessary, can roll back the changes to improve performance or quality.

Continuous delivery enables you to release code with minimum risk to the business and no delay. It works by managing the delivery of changes to all environments in parallel. If anything goes wrong, the industry will be notified by the release managers and the service delivery team.



The difference between continuous integration and continuous delivery

By taking these steps, you're on your way to deploying your applications reliably and quickly, increasing your software quality, and continuously responding to customer needs.

Continuous integration: How it works

Continuous integration gives you a way to automate the creation of a new build of your software. The first step is to create the build with a test framework and generate a new build using a build tool. Most build tools will do this automatically. When the build is completed, you will receive a "build successful" message, which you can also use to start testing the software.

Continuous delivery: How it works

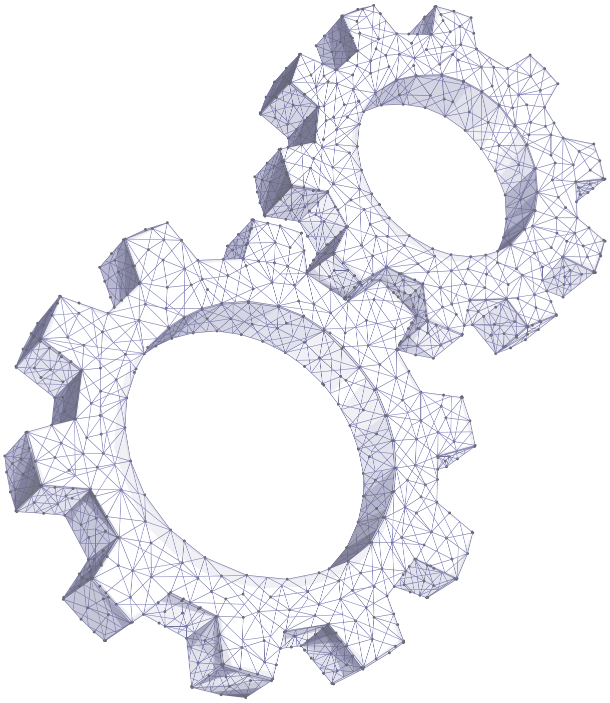
The continuous delivery process is very similar to the continuous integration process, with the critical difference being that the build tool is now turned off. Continuous delivery means that the continuous deployment process is set up to produce a release once the business needs it.

Employing a CI/CD model will:

- ✓ Automate your software development cycle
- ✓ Reduce the chances of issues causing delays or serious software failures
- ✓ Decrease the need for manual processes
- ✓ Increase your competitive advantage

When the business needs a new release, the service delivery team will assemble the relevant components and push them to a CD pipeline. They are automatically tested and deployed to the appropriate environment.

Benefits of implementing a CI/CD model for your company in 2021



By having your team automatically build and deploy code to various environments, you'll reduce the chances of introducing errors to the development process, which will reduce the need for manual processes and increase your competitive advantage. You'll also be able to reduce the cost of development because you won't be required to spend time testing your software and fixing issues.

With the CI/CD model, you're also developing software in parallel with developing new features and changes. In the event of a development error, you'll know that your changes will be deployed quickly, rather than waiting until a fix is released.

Alternatives to CI/CD you can use in 2021

Some companies are using other approaches to software delivery. The following are some of the options:

- **Release management:** Release management focuses on testing changes and monitoring quality rather than delivering code from the build to the test environment. Release management is designed to meet a company's internal needs, not its external customers. While release management is the most common way of deploying software to production environments, it doesn't provide the continuous delivery process's flexibility. It also doesn't help to keep up with changing priorities and requirements. To see how release management enables you to deliver software, you can read The importance of a continuous delivery approach to developing software.
- **Continuous deployment:** Continuous deployment is a means of applying a software change to multiple environments within a company at the same time. These environments include development, test, production, and any required environments. In continuous deployment, a software update is applied to the production environment first, then to a development environment, and finally to a test environment.

Although it can be used in continuous delivery, continuous deployment is not limited to continuous delivery. It can be used in continuous integration, too, with the addition of a continuous delivery process. For more information, see Continuous deployment: a checklist for your next project.

Continuous deployment: a checklist for your next project

- ✓ Ensure business alignment across organizations and teams
- ✓ Ensure the entire team understands the software lifecycle
- ✓ Reduce cycle time
- ✓ Review and improve processes
- ✓ Do proactive planning
- ✓ Learn from failures
- ✓ Optimize for speed and collect data
- ✓ Allow time for learning
- ✓ Document operations
- ✓ Share knowledge
- ✓ Instrument the application for insight
- ✓ Track technical debt
- ✓ Push updates directly to production
- ✓ Automate testing
- ✓ Use Continuous Integration
- ✓ Make systems observable

Why DevOps May Fail in 2021

Although there are plenty of benefits to adopting a continuous delivery model, some organizations are still undecided about adopting the practice. The following are some reasons developers may choose to adopt CI/CD mindset but fail to adopt DevOps delivery.

- ✓ **Lack of resources:** Because the continual delivery process requires a significant amount of time and effort, it's often difficult to see the benefit. For example, if your organization has limited resources, you may choose to adopt continuous delivery but not continuous deployment.

- ✓ **Lack of commitment:** Some developers don't take the continuous delivery process seriously and believe that continuous deployment is just a good idea. Without a commitment to the process, you may not see the benefits of adopting continuous delivery.

- ✓ **Lack of a process and process mastery:** Some organizations do not have a strategy for integrating software. A method is also vital when adopting CI/CD and continuous deployment.

- ✓ **Lack of an automation program:** If you don't have a system that automatically generates the code for you to deploy to development, test, and production environments, it's challenging to adopt a continuous delivery or continuous deployment process. Without an automation program, you'll need to spend additional time reviewing the code to identify and fix bugs.

Lessons learned that you could leverage to argue for DevOps in 2021

The lessons learned from the adoption of a continuous integration/continuous delivery model are numerous and valuable. That is especially true for continuous integration/ continuous delivery. The following are some of the things that developers should keep in mind when adopting the continuous integration/ continuous delivery model.

- **Flexibility:** Flexibility is another benefit of adopting a continuous integration/ continuous delivery model. You'll be able to adapt to changes in the market and changing customer needs. Flexibility is also key to continuous deployment. If you have a flexible development environment, you'll be able to make changes in the code at a specific point and skip the long testing process. In the case of continuous deployment, you'll be able to deploy the code to the environment as soon as a new release is ready.
- **Increased efficiencies:** Continuous delivery enables you to work efficiently and effectively and save time and resources. You'll be able to reduce your workload.
- **Automation:** Automation is a necessary part of the continuous integration/continuous delivery model. You'll need an automated build, test, deployment, and management platform. The same survey revealed that 90 percent of developers would be willing to pay a premium for automated deployment tools.

Continuous delivery is a comprehensive and complicated process. It requires a considerable amount of time and effort, which is why it's essential to find a partner that can help you scale and automate the process.

Why DevOps is different from Agile

“Agile” and “DevOps” are both frameworks for software development and deployment, but the main differences lie in how they approach that work.

Agile focuses on creating and distributing software to a production environment with limited business intervention. In contrast, DevOps focuses on delivering applications to your users every day and making changes in production.

There are two ways to do this. One is to monitor your production environments for defects continually and actively fix them. The other is to make changes in your production environments when changes are made to the customer’s environment.

So, a team that’s delivering software every day and making changes in production would still need to follow the DevOps process, despite doing less work and responding more quickly to customer feedback.

The other key difference is how you involve the business in developing and deploying the software. With Agile, the business is involved at every stage of the development and deployment process. With DevOps, this involvement tends to be more on the data side to improve the application’s performance.

Before you can adopt DevOps, you need to define the service you’re building and ensure that it’s as elastic as possible. For example, your application might need to support new browsers, operating systems, and device models, all of which could drastically change the way users interact with your service. It’s only by keeping abreast of these trends that you’ll be able to adjust your service quickly.

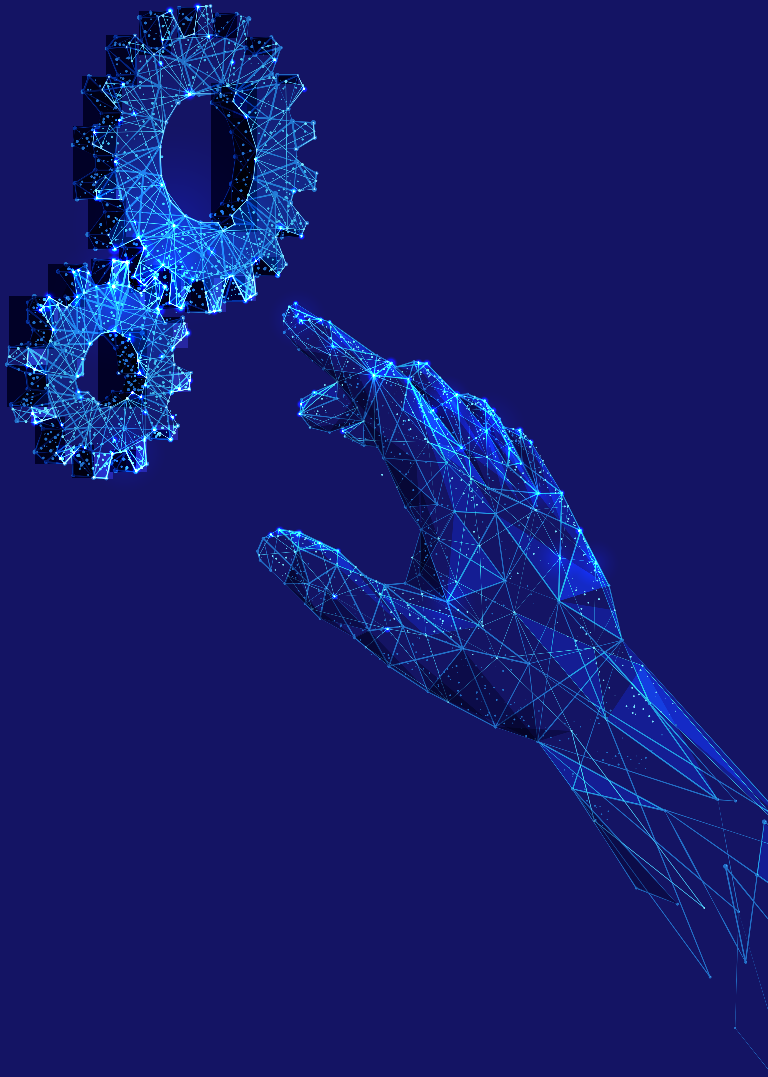
Doing so can take a lot of time and effort, so it’s a good idea to plan to have another team, or even a group of people outside of the development and delivery team, act as what’s known as a “carrier” for that service. This group will execute changes to the customer’s environment (and, if necessary, make changes to that environment).

In an ideal world, the carrier team would be virtual, but this can be difficult if you’re not directly selling to a business or are geographically remote. In such cases, it makes sense to appoint a service delivery team that will have direct, daily access to your carrier team.

How Scaled Agile Framework and DevOps can work together in 2021

The benefits of using Scaled Agile Framework with your DevOps delivery team and PMOs

There are many benefits of adopting a Scaled Agile Framework with your DevOps delivery team and PMOs. These benefits include better time-to-value, reduced risk, and improved employee engagement. The benefits go beyond PMOs because Scaled Agile Framework aligns with the organizational vision and helps the entire company become more productive. Let's take a more in-depth look at the following benefits.



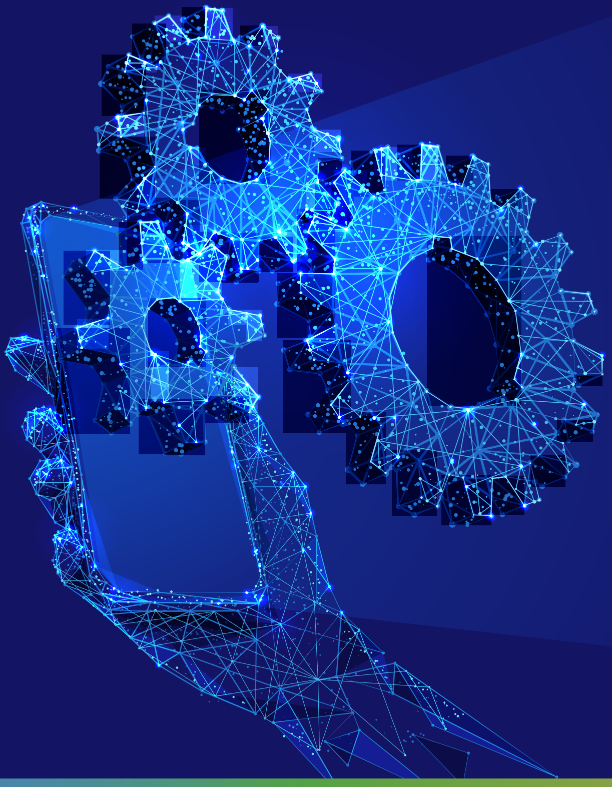
- ✓ **Improved time-to-value:** "Time to value" is one of the most important measurements when determining how well an initiative or project progresses. Scaled Agile Framework promotes a better time-to-value for projects by minimizing project scoping and removing redundancy. Further, the Scaled Agile Framework aligns with other business metrics, including the business objective and delivery speed, so there is an easy way to measure the progress of your efforts.

- ✓ **Improved quality:** Scaled Agile Framework removes unnecessary actions and provides a much more iterative approach to development. That leads to faster and higher quality software.
- ✓ **Fewer defect reports:** A project team has to spend less time focusing on low-level details and more time on the project's goal. Consequently, fewer defects get reported.
- ✓ **Faster project iterations:** Scaled Agile Framework promotes a project team's ability to explore creative possibilities and provide high-velocity iterations to deliver new functionality. That allows the team to address unanticipated problems as soon as they occur.
- ✓ **A better work/life balance:** Scaled Agile Framework helps improve workers' quality of life, which benefits the company's bottom line. By taking a project management approach and simplifying repetitive and mundane tasks, the workload decreases, and job satisfaction increases. It is less work to complete tasks for which you already know what the best solutions are.
- ✓ **Partnerships:** Scaled Agile Framework doesn't stop at the boundaries of a team. Teams are expected to develop mutual relationships with suppliers and clients. As a result, partnerships are formed to design, execute, manage, and monitor their projects together, leading to higher productivity.
- ✓ **Lowering risk:** Scaled Agile Framework embraces a fail-fast mentality. One of the common mistakes of IT projects is a delay when responding to threats and problems. To resolve that, the project teams must have a strong commitment to understanding the business problem and how to solve it quickly.
- ✓ **A more engaged workforce:** With Scaled Agile Framework, a more empowered team working together leads to higher productivity. Employees are more engaged because they are trusted to solve problems and address unexpected issues. Employees experience more autonomy, and autonomy leads to more creativity. A team is also more engaged because it is empowered to deliver on the stated objectives.

What Scaled Agile Framework means for your company

Once you learn the benefits of the Scaled Agile Framework, you'll want to improve your business strategy. Scaled Agile Framework aligns with the digital transformation, multi-cloud, and DevOps strategies for your company, so you should adopt this method to develop new products faster and deliver more flexible and scalable products.

Start by adopting the best practices from the Scaled Agile Framework. By adopting the Scaled Agile Framework, you can reduce the time it takes to develop new software and deliver a better experience for your customers and yourself.



As a DevOps engineer working with BI, data, and AIOps, you must make the connection between what's coming in from the world and what should be done with it. You need to realize that a (digital) customer has a life and context that is not the same for all people, in the same company or even the same department. In other words, they are human beings. That makes it difficult for an IT department to apply one-size-fits-all approaches because there's no simple rule that applies across all enterprises.

The industry also has much experience working on operational change. But we see the same patterns repeat themselves in a different form. What can help is collaboration and bringing people from other functions and business units together. To enable that, you need a joint approach to problem definition, solution definition, and project execution. If you can deliver that, you will achieve much faster agility and fewer disruptions. You can apply DevOps practices, but it's not about DevOps only, but also integrating the data, automation, and analytics. Also, look for a company that understands your business's nuances. Finally, try to limit the technologies you use and, more importantly, identify and develop your innovative ones.

DevOps and AIOps become more aligned in 2021

There's an increasing demand for actionable insights in every part of the organizations driven by automation technologies built into AIOps. The increase in digital technology, coupled with the growing complexity of data and processes, leads to more effective use of BI and analytics. Although organizations have adopted BI and analytics for various purposes, from decision-making to process optimization, BI and analytics' highest value lies in the improved execution of the underlying business processes and understanding of customers.

A massive amount of digitized data and processes have emerged that needed to be integrated and run in real-time to provide real-time answers for the business and ensure business continuity.

The other demand for automation has arisen from the dramatic rise in digital and cloud-based services. There is an imperative to integrate and automate key business processes to reduce costs and avoid disruptions to the end-user.

These trends have been further fueled by the growth in big data, artificial intelligence, and the business's changing nature. Most enterprises are keen to apply "digital-first" initiatives and are looking to bring digital capabilities to the table. The outcome is that DevOps and AIOps are going to be increasingly connected.

Of course, today's release of self-service analytics tools — such as Google Analytics 360, Salesforce Lightning, and IBM's Watson Analytics — has helped organizations transition from the costlier options to self-service analytics and BI tools. However, the next generation of self-service analytics tools will require better quality data — and the enhanced analytics tools need better data quality — to indeed be a value-add.

The value of Cloud Services increases in 2021

To succeed in the future, companies need to embrace and leverage a multi-cloud environment. Their core applications and platforms and the applications or data that power them will be distributed and in the cloud. However, cloud-native technologies such as Kubernetes provide the means to develop, run, and manage these distributed applications across multiple clouds, thereby modernizing the application stack's core.

The shift to cloud-native applications demands an infrastructure that can support the growing number of connections, moving workloads to the cloud without interrupting operations or changing the way the application is architected. Developers need CI/CD cycles and to work with single codebases with automated updates.

The emergence of microservices enables organizations to become more agile, allowing teams to work more efficiently and move faster. But the real advantage of microservices is the ability to utilize and reuse the most suitable components in a unified architecture. This approach is one of the keys to building faster and more agile applications.

Digital transformation is transforming all industries, and all enterprises are trying to adopt this new way of working. We are seeing increasing demand for cloud-native solutions. Software technologies such as containers and DevOps will continue to drive digital transformation. That means a new era of applications will be created and managed in an entirely new way. The aim is to have fast, continuous and scalable infrastructure with microservices architectures that can meet future demands, and we are ready to enable this.

The continued value of cloud-native services and open source could make it hard for CIOs to justify traditional enterprise infrastructure costs. The bigger question is whether to deploy this type of infrastructure in production as the advantages start to dwindle.

The emergence of the Citizen Developer in 2021

The emergence of the Citizen Developer platform in our industry leads to many possibilities for innovation and differentiation for both IT and the end-user. With the current hype around this concept, most companies embrace the idea of embracing technology to create a better user experience. This focus on the end-user has resulted in a robust, effective, and easy-to-use App Store and ecosystem for the customer, resulting in an improved end-user experience.

With these positive developments in the technology space, employees are no longer working in silos but rather in a highly collaborative environment. We are increasingly seeing teams working on different projects simultaneously and sharing knowledge and experiences seamlessly, which improves productivity and ease of doing business for the business.

The use of apps has been increasing exponentially, with many apps claiming to provide more features, functionality, and value than a piece of paper or pen and paper. The companies that can deploy digital technologies that support multi-task and share information seamlessly are on their way to achieving greater productivity and employee satisfaction. The consensus is that a single digital application provides a rich user experience to the end-user, and at the same time, supports the organizational goals.

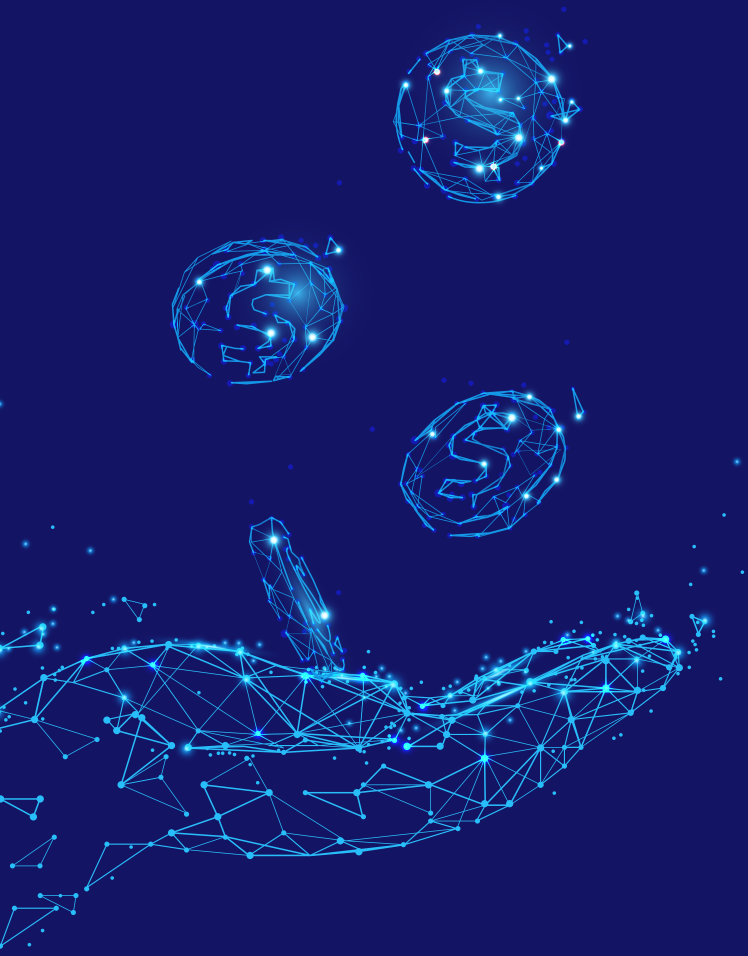
How will investments in IT continue to shape organizations in 2021?

IT investments have never been as significant or as pervasive as they are today. IT is no longer a small feature in an enterprise but a defining requirement for survival.

It is clear that businesses cannot afford to ignore IT at all but must rely on it to drive innovation and ensure their survival in a highly competitive landscape. The fact that the enterprise IT function is not viewed and treated as an essential element in the overall digital transformation is the central challenge most enterprises face.

This IT function is increasingly changing, but at the same time, it is also morphing into different types of digital businesses, where new business models and new roles are being created. IT's future will not be a conventional IT function that companies have to hire for or an IT function focused on traditional legacy technologies.

This digital transformation requires new types of skills to come into the workplace through people who can learn data skills and new skills in new ways. Most of IT's core responsibilities have also changed, as they are no longer limited to processing and handling information.



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